FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

September 9 to September 22, 2012 (Weeks 37 & 38)

Overall Influenza Summary

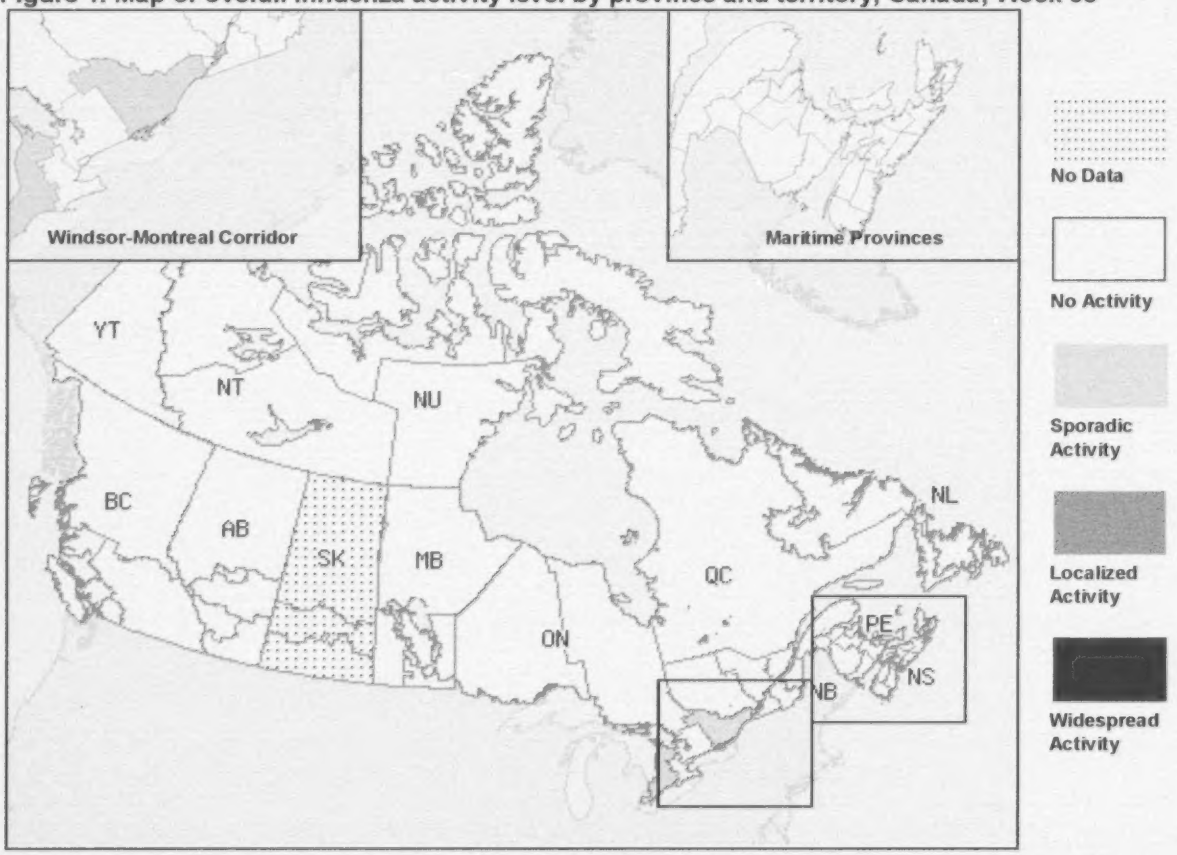
- Influenza activity in Canada remains low as only a few regions reported sporadic activity over the two-week period (in ON, QC & NL)
- In weeks 37 and 38, a total of 5 laboratory detections of influenza were reported, all of which were for influenza A viruses [1 A(H1N1)pdm09 and 4 A(un-subtyped)]
- One influenza A-associated hospitalization (in a person >20 years of age) was reported over the two-week period
- The ILI consultation rate increased in week 38 to 17.8 per 1,000 patient visits but remains within the expected level for this time of year

NOTE: Bi-weekly reports will continue until October 12, 2012. However, laboratory detections reported through the RVDSS and influenza activity level maps will be updated weekly on the FluWatch website.

Influenza Activity (geographic spread) and Outbreaks

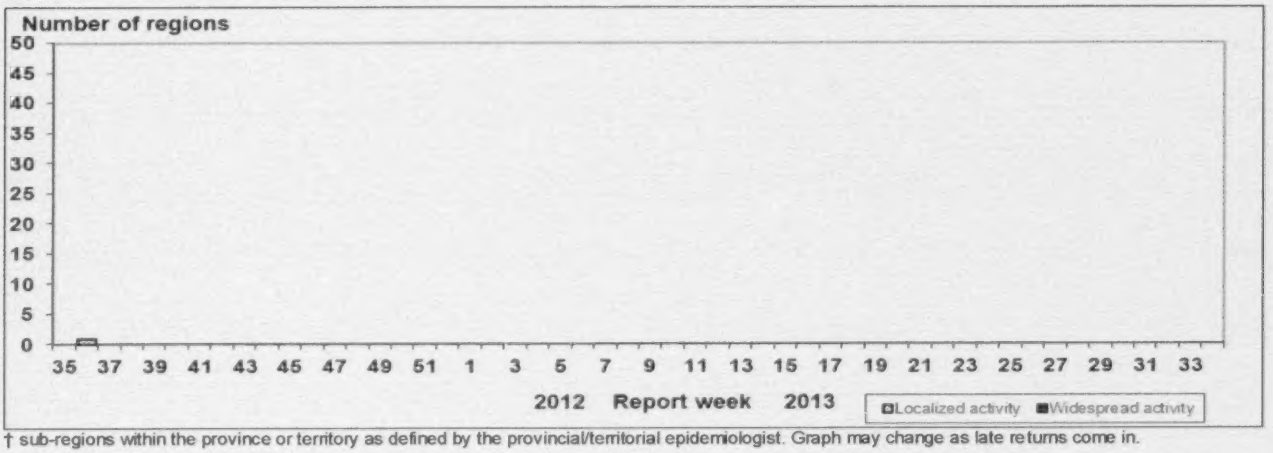
In week 37, 1 region (within NL) reported sporadic activity while the rest reported no activity. In week 38, 3 regions (within ON & QC) reported sporadic activity and the rest reported no activity (see Figure 1). Note that data was not received from SK and PEI for week 37 and from SK for week 38. No new outbreaks of influenza or ILI were reported in weeks 37 and 38 (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 38



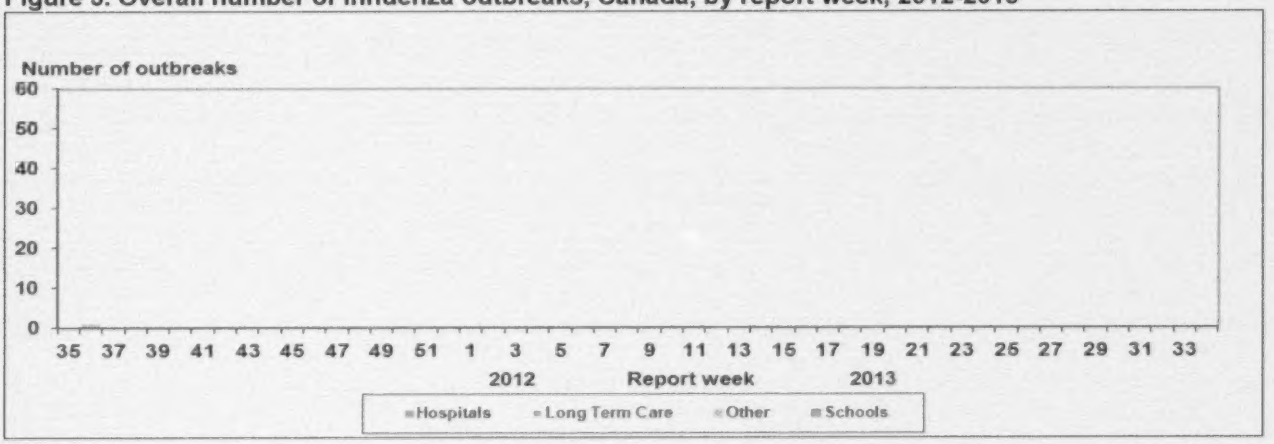
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (N=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests was 0.3% in week 37 and 0.4% in week 38 (Figure 4 and 5). This is a slight decrease from week 36 (0.6%). Over the two week period, only influenza A detections were reported: 20% were A(H1N1)pdm09 and 80% were A unsubtyped (Table 1).

Cumulative influenza virus detections by type/subtype to date are as follows: 88.5% influenza A (47.8% - A(H3), 0.4% - A(H1N1)pdm09 and 47.8% - unsubtyped) and 11.5% influenza B (Table 1).

Detailed information on age and type/subtype of the positive influenza cases to date will be presented once more information becomes available (Table 2).

The percentage positive for rhinovirus detections was similar to the previous week (26.7% & 23.7% in weeks 37 & 38 respectively) and remains the highest compared to the other respiratory viruses. The percentage positive for the other respiratory viruses in week 38 remained low: RSV-1.1%; parainfluenza-2.0; adenovirus-1.5%; hMPV-0.0%; and coronavirus-0.7% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	September 9 to September 22, 2012						Cumulative (August 26, 2012 to September 22, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	0	0	0	0	0	0	3	0	2	0	1	0
AB	1	0	0	1	0	0	3	0	1	1	1	1
SK	1	0	0	0	1	0	1	0	0	0	1	1
MB	0	0	0	0	0	0	3	0	3	0	0	0
ON	2	0	0	0	2	0	9	0	4	0	5	0
QC	1	0	0	0	1	0	2	0	0	0	2	1
NB	0	0	0	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	2	0	1	0	1	0
Canada	**5**	**0**	**0**	**1**	**4**	**0**	**23**	**0**	**11**	**1**	**11**	**3**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (August 26 to September 22, 2012)					Cumulative (Aug. 26, 2012 to Sept. 22, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	-	-	-	-	-	-	-	-	-	-
5-19	-	-	-	-	-	-	-	-	-	-
20-44	-	-	-	-	-	-	-	-	-	-
45-64	-	-	-	-	-	-	-	-	-	-
65+	-	-	-	-	-	-	-	-	-	-
Unknown	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-

*Please note that the table will be populated once more data becomes available.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

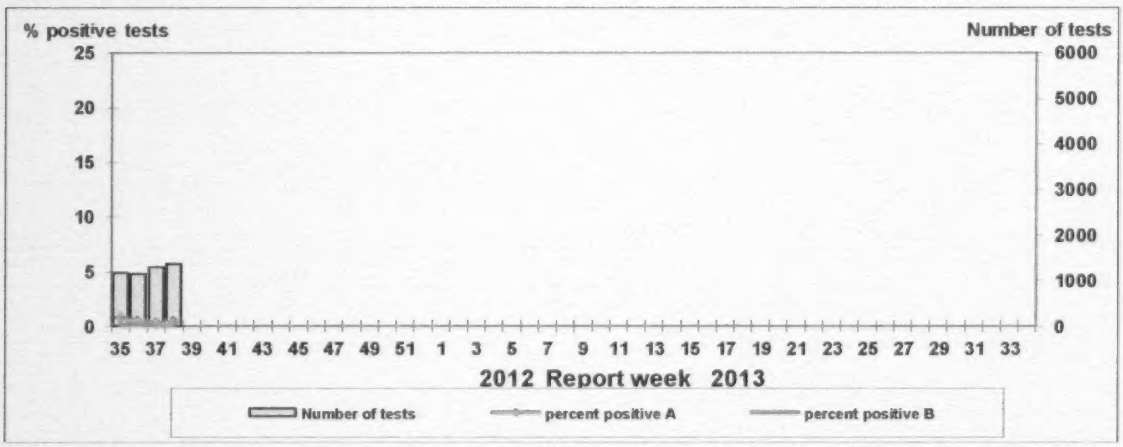
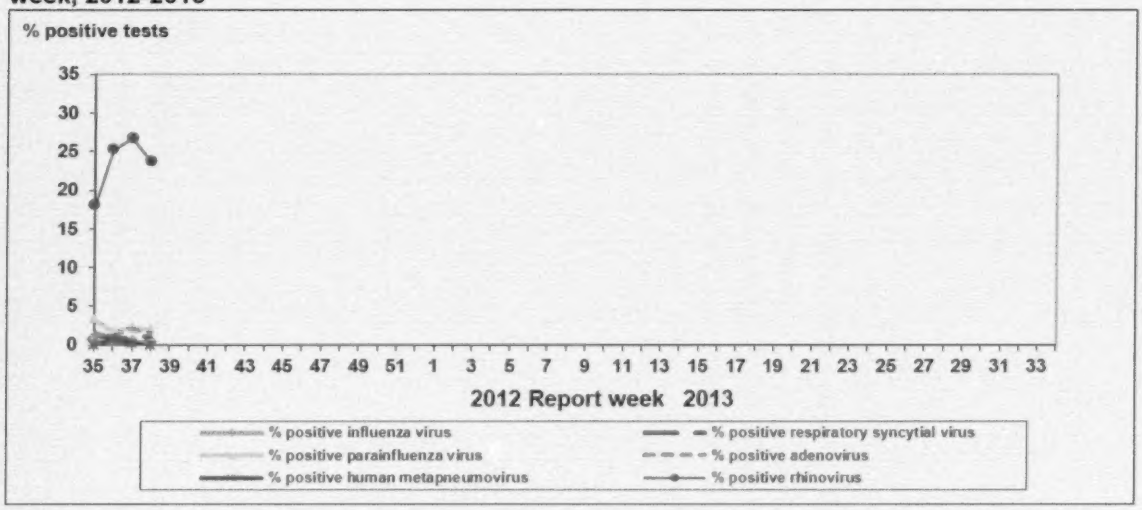


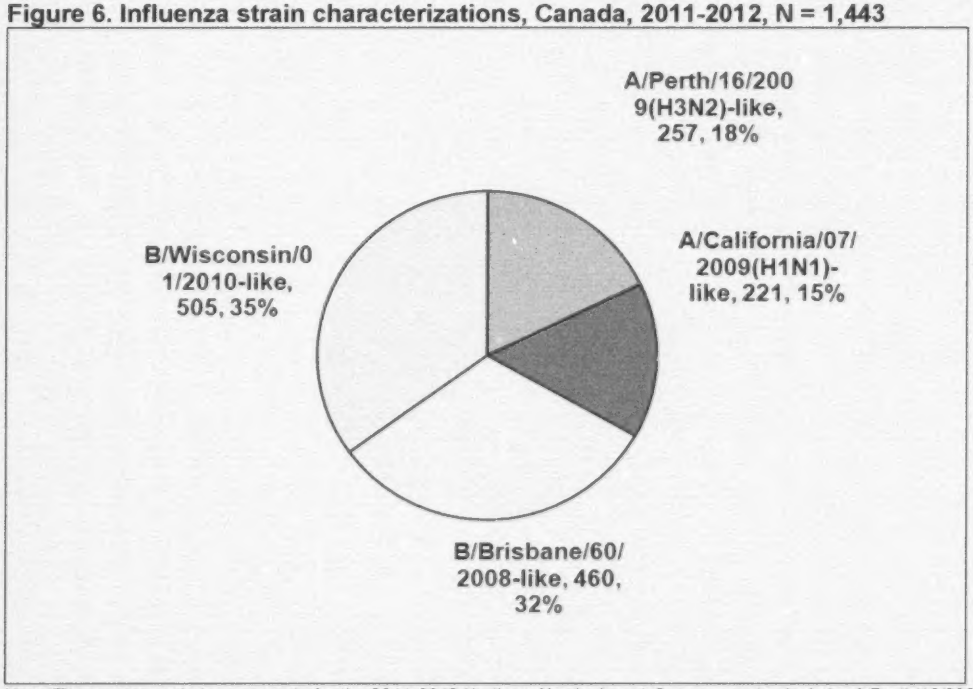
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

No data on influenza strain characterizations have been reported by the National Microbiology Laboratory (NML) since the start of the 2012-2013 influenza season. However, of the influenza viruses characterized in the months of July and August 2012, the majority (52%) were antigenically similar to B/Wisconsin/01/2010 (Yamagata lineage) while the rest were antigenically similar to either A/Perth/16/2009 (24%) or B/Brisbane/60/2008 (Victoria lineage) (24%). The distribution of influenza strain characterizations for the 2011-2012 influenza season are presented in Figure 6.

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 1,443



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

No data on antiviral resistance have been reported by the National Microbiology Laboratory (NML) since the start of the 2012-2013 influenza season. However, antiviral resistance findings from the 2011-2012 influenza season are presented in Table 3.

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

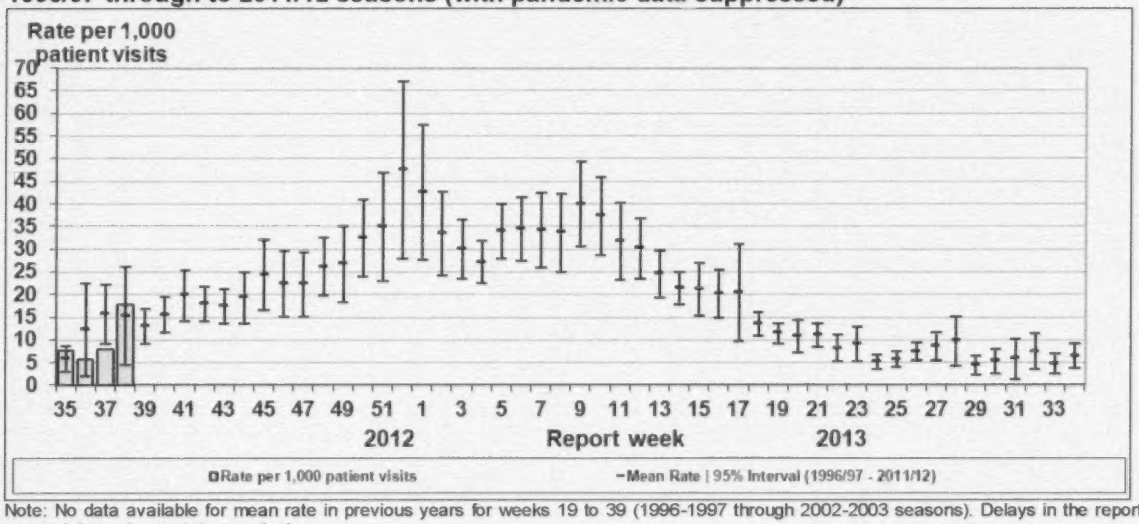
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	256	0	255	0	450	449 (99.8%)
A (H1N1)	256	0	256	0	356	356 (100%)
B	967	0	967	0	NA*	NA*
TOTAL	1479	0	1478	0	806	805 (99.9%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate was below expected levels in week 37 (8.0 ILI consultations per 1,000 patient visits); however the ILI rate increased in week 38 to 17.8/1,000 yet remains within the expected levels for this time of year (Figure 7). The highest consultation rates in week 38 were observed in those between 5-19 years of age (55.0/1,000) and in those <5 years of age (34.1/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

No laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations have been reported by the Immunization Monitoring Program Active (IMPACT) network since the start of the 2012-2013 influenza season.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In weeks 37 and 38, one laboratory-confirmed influenza A-associated hospitalization was reported in NL. The case was >20 years of age and was admitted to ICU. This was the first influenza-associated hospitalization reported this season.

Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces: BC, NU, QC, NS, & NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Seasonal influenza transmission has not been picked up yet in the northern temperate zone. Most countries in this zone have started or are yet to begin seasonal reporting. In the tropical areas most countries are reporting low or decreasing trends of influenza detections. The exceptions are Nicaragua in the Americas and India and Thailand in Asia. Influenza activity decreased in most of the temperate countries of the southern hemisphere. Australia, Chile, New Zealand, Paraguay and South Africa continue to report declines in influenza indicators. On the other hand, Argentina has reported some late influenza activity. *World Health Organization influenza update*

Recommended composition of influenza virus vaccines for use in the 2013 southern hemisphere influenza season
It is recommended that **trivalent** vaccines for use in the 2013 influenza season (southern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus[a]; an A/Victoria/361/2011 (H3N2)-like virus[b]; a B/Wisconsin/1/2010-like virus[c].

It is recommended that **quadrivalent** vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus[d].

[a]A/Christchurch/16/2010 is an A/California/7/2009-like virus; [b]A/Ohio/2/2012, A/Maryland/2/2012, A/South Australia/30/2012, A/Brisbane/1/2012 and A/Brisbane/6/2012 are A/Victoria/361/2011-like viruses; [c]B/Hubei-Wujiagang/158/2009 and B/Texas/6/2011 are B/Wisconsin/1/2010-like viruses; [d]B/Brisbane/33/2008 is a B/Brisbane/60/2008-like virus.

United States: The proportion of tests positive for influenza viruses over a two-week period was similar to previous weeks and was 2.0% in week 37. Of the positive influenza detections reported during week 37, the majority (64%) were positive for influenza B viruses. Of the 4 influenza A viruses for which subtype information was available, 50% were A(H3) and 50% were H3N2v. All other indicators of influenza activity remained low. *Centers for Disease Control and Prevention seasonal influenza report*

Novel Influenza A Virus: From July 12 through September 20, 2012, a total of 305 infections with influenza A (H3N2) variant (H3N2v) viruses have been reported in ten states: Hawaii (1), Illinois (4), Indiana (138), Maryland (12), Michigan (6), Minnesota (4), Ohio (106), Pennsylvania (11), West Virginia (3), and Wisconsin (20). So far during the current outbreaks, 16 cases have been hospitalized as a result of their illness; one H3N2v-associated death has been reported. The vast majority of cases have been associated with swine exposure though likely instances of human-to-human transmission have been identified; no ongoing human-to-human transmission has been reported. Public health and agriculture officials are investigating the extent of disease among humans and swine, and additional cases are likely to be identified as the investigation continues.

As a result of enhanced surveillance activities for H3N2v, one infection with an influenza A (H1N1) variant (H1N1v) virus has been detected in Missouri in a patient who became ill after contact with swine. The patient has recovered from their illness. Confirmatory testing at CDC identified H1N1v with the matrix (M) gene from the 2009 H1N1 influenza virus in specimens collected from this patient. Cases of H1N1v have been detected previously, and the current case marks the second report of H1N1v with the M gene from the 2009 H1N1 virus.

Europe: In week 38, influenza activity in the European Region was low. Only 2 (2.1%) of the 95 samples collected from sentinel sources were positive for influenza virus (all A unsubtyped); 21 samples from non-sentinel sources were positive for influenza viruses (14 influenza B, 3 influenza A(H3N2) and 4 un-subtyped), indicating low influenza activity in the Region.
EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

No cases of human avian influenza A/H5N1 infection have been reported by the WHO since August 10, 2012. *WHO Avian influenza situation updates*

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.